



Universiteit Utrecht

[Faculty of Science  
Information and Computing Sciences]

# Compiler Construction

Stefan Holdermans

Dept. of Information and Computing Sciences, Utrecht University  
P.O. Box 80.089, 3508 TB Utrecht, The Netherlands  
E-mail: [stefan@cs.uu.nl](mailto:stefan@cs.uu.nl)  
Web pages: <http://people.cs.uu.nl/stefan/>

November 12, 2008

# 1. Exercises



1. To what extent can converting a GIF image to a JPEG image be considered a process of compilation?
2. Would it make sense for the source and target language of a compiler to be the same?
3. Identify some scenarios in which the use of a cross compiler may be desirable.



1. Why would one choose the implementation language of a compiler to be the same as the source language?
2. Why would one want to write a bootstrapping compiler?
3. How could one construct the first version of a bootstrapping compiler for a self-hoisting language if there is no other compiler available for the language?



1. What advantages are there to using C as the target language of a compiler for a high-level programming language?



1. If an interpreter is written in a popular programming language, it is often fairly easy to make it available for a large number of target platforms.  
To do so for a compiler written in the same programming language is not that easy.  
Explain why. How can compiler writers circumvent this problem?
2. Explain why interpreted code typically runs slower than compiled code.
3. Explain why running interpreted code can be safer than running compiled code.

